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wissenschaftliche Biographie von Gauss—Heft 4: *C. F. Gauss als Zahlenrechner* von A. Galle (Pp. 1–24); Heft 5: *C. F. Gauss als Geometer* von P. Stäckel (Pp. 25–142), 1918. Earlier parts were—Heft 1: *Ueber Gauss' zahlentheoretische Arbeiten* von P. Bachmann, 1911; Heft 2: *C. F. Gauss, Fragmente zur Theorie des arithmetisch-geometrischen Mittels aus den Jahren 1797–1799*, and Heft 3: *Ueber Gauss' Arbeiten zur Funktionentheorie*, von L. Schlesinger, 1912.

The first part of the tenth volume of Gauss' collected works appeared in 1917. It is a volume of nearly 600 pages and is entitled "Nachträge zur reinen Mathematik. Nachbildung und Abdruck des Tagebuchs." The second part of volume 10 (Aufsätze über Gauss' wissenschaftliche Tätigkeit auf den Gebieten der reinen Mathematik—Zahlentheorie, Funktionentheorie, Algebra, Geometrie, Variationsrechnung) and the first part of volume 11 (Nachträge zur Physik, Astronomie und Chronologie) are in the press. The second part of volume 11 which is in course of preparation is to contain "Aufsätze über Gauss' wissenschaftliche Tätigkeit auf den Gebieten der angewandten Mathematik." The twelfth and last volume is to be biographical.

The following quotation is a bit of personal testimony to the value of mathematical study, from the pen of one who has become world renowned for the clarity and beauty of his literary style:

"Geometry was to teach me the logical progression of thought; it was to tell me how the difficulties are broken up into sections which, elucidated consecutively, together form a lever capable of moving the block that resists direct efforts; lastly, it showed me how order is engendered, order, the base of clarity. If it has ever fallen to my lot to write a page or two which the reader has run over without excessive fatigue, I owe it, in great part, to geometry, that wonderful teacher of the art of directing one's thought. True, it does not bestow imagination, a delicate flower blossoming none knows how and unable to thrive on every soil; but it arranges what is confused, thins out the dense, calms the tumultuous, filters the muddy, and gives lucidity, a product superior to all the tropes of rhetoric.

"Yes, as a toiler with the pen, I owe much to it. Wherefore my thoughts readily turn back to those bright hours of my novitiate, when, retiring to a corner of the garden in recreation-time, with a bit of paper on my knees and a stump of pencil in my fingers, I used to practise deducing this or that property correctly from an assemblage of straight lines. The others amused themselves all around me; I found my delight in the frustum of a pyramid." From *The Life of the Fly with which are interspersed some chapters of autobiography* by J. HENRI FABRE, translated by A. T. de Mattos. New York, Dodd, Mead and Co., 1913, Chapter 12: "Mathematical memories: Newton's binomial theorem."

ARTICLES IN CURRENT PERIODICALS.

AMERICAN JOURNAL OF MATHEMATICS, volume 40, no. 4, October, 1918: "Theta modular groups determined by point sets" by A. B. Coble, 317–340; "On the asymptotic solution of the non-homogeneous linear differential equation of the n th order—a particular solution" by W. V. N. Garretson, 341–350; "A collineation group isomorphic with the group of the double tangents of the plane quartic" by C. C. Bramble, 351–365; "Proof of Pohlke's theorem and its generalizations by affinity" by A. Emch, 366–374; "Arithmetical theory of certain Hurwitzian continued fractions" by D. N. Lehmer, 375–390.

BULLETIN OF THE AMERICAN MATHEMATICAL SOCIETY, volume 25, no. 4, January, 1919: "On the evaluation of the elliptic transcendents η_2 and η_2'' " by Harris Hancock, 150–157; "On plane algebraic curves with a given system of foci" by Arnold Emch, 157–161; "Quadratic systems of circles in non-Euclidean geometry" by D. M. Y. Sommerville, 161–173; "Continuous sets that have no continuous sets of condensation" by R. L. Moore, 174–176; "Derivativeless continuous functions" by M. B. Porter, 176–180; Review by R. D. Carmichael of Picard's *Les*

sciences mathématiques en France depuis un demi-siècle (Paris, 1912), 180–184; Review by A. D. Pitcher of Young and Morgan's *Elementary Mathematical Analysis* (New York, 1917), 185–187—No. 5, February: "The December meeting of the San Francisco section," B. A. Bernstein, 193–196; "The scientific work of Maxime Bôcher" by G. D. Birkhoff, 197–215 [contains a list of Bôcher's writings, 101 titles]; "On a theorem of oscillation" by W. F. Osgood, 216–221; "Proof of a property of the norm of a cyclotomic integer" by H. S. Vandiver, 221–223; "Trajectories and flat points on ruled surfaces" by J. K. Whittemore, 223–229; "Points of view of Cauchy and Weierstrass in the theory of functions" by R. D. Carmichael, 230–234 [a review of E. Borel's *Leçons sur les fonctions monogènes uniformes d'une variable complexe*]; Review by R. D. Carmichael of G. W. Parker's *Elements of Optics for the use of schools and colleges* (London, 1915), 234–235; "Notes" and "New Publications," 235–240—No. 6, March: "The twenty-fifth annual meeting of the American Mathematical Society," 241–257; "Applications of the theory of summability to developments in orthogonal functions" by C. N. Moore, 258–276; "Modular systems" by R. D. Carmichael, 276–279 [a review of F. S. Macaulay's *The algebraic theory of modular systems* (Cambridge, 1916)]; "Notes" and "New Publications," 279–288.

EDUCATION, Boston, volume 39, no. 4, December, 1918: "On the disciplinary and applied value of mathematical study" by C. N. Moore, 209–216.

EDUCATIONAL REVIEW, New York, volume 57, no. 2, February, 1919: Review by C. J. Keyser of Shaw's *Lectures on the Philosophy of Mathematics* (Chicago, 1918), 167–169.

JAHRESBERICHT DER DEUTSCHEN MATHEMATIKER VEREINIGUNG, volume 27, nos. 1–4, January–April, 1918: "Analyse und Synthese in der Geometrie" by L. Heffter, 1–19 [Rede bei Uebernahme des Prorektorats der Universität Freiburg i. B. am 12. Mai, 1917]; "Verallgemeinerungen des Pohlkeschen Satzes" by E. Kruppa, 20–36; "Ueber algebraische Gleichungen mit lauter reellen Wurzeln" by J. v. S. Nagy, 37–43; "Ueber geometrische Relationen zwischen den Wurzeln einer algebraischen Gleichung und ihrer Derivierten" by J. v. S. Nagy, 44–48; "Ueber nichtlineare Integralgleichungen vom Volterraschen Typus" (Zusätze zu der Arbeit in Bd. 23, 1914, S. 303–313) by J. Horn, 48–53; "Ein funktionentheoretischer Satz Jacobis" by G. Kowalewski, 53–55; "Zu Grassmanns Note: 'Lösung der Gleichung $x^3 + y^3 + z^3 + u^3 = 0$ in ganzen Zahlen'" by A. Hurwitz, 55–56; "Ein grundlegender Satz von Poncelet über die Brennpunkte von Kegelschnitten und seine Ausdehnung auf kubische Raumkurven," 57–66; "Ueber Kurven gleichmässigster Krümmung" by R. v. Mises, 67–71; "Der mittlere Fehler des zum Quadrat erhobenen Divergenzkoeffizienten" by L. v. Bortkiewicz, 71–80.—Nos. 5–8. May–August, (publ. in October): "Der mittlere Fehler des zum Quadrat erhobenen Divergenzkoeffizienten" (conclusion) by L. v. Bortkiewicz, 81–126; "Neue Beiträge zur Charakterisierung der Riemannschen Transzendenten" by R. König, 126–141; "Grenzübergänge in der Krümmungslehre" by P. Stäckel, 142–157; "Mittelwertsätze der Potentialtheorie" by W. Blaschke, 157–160; "Bemerkung zu meinem Aufsatz über einen funktionentheoretischen Satz Jacobis" by G. Kowalewski, 160.

JOURNAL OF THE FRANKLIN INSTITUTE, volume 186, August and November, 1918: "A surface having only a single side" by C. Hering, 233–241, 627–630. Also in *Scientific American Supplement*, December 21, 1918. [Quotation: "It is quite simple, however, to devise a true surface which has only one side, and as this has some very odd and peculiar properties the following description of it may be of interest; and when this surface is better understood perhaps some applications of it may be found. Steinmetz in the *Journal of the American Chemical Society*, May, 1918, p. 733, for instance, showed how this and the Riemann surface, on account of their peculiar properties, can be used for illustrating some of the complicated relations in the periodic system of the chemical elements."]

MESSENGER OF MATHEMATICS, volume 48, no. 2, June 1918: "The problem of the square pyramid" (concluded) by G. N. Watson, 17–22; "Note on the representation of the expansion of a bordered determinant" by T. Muir, 23–32.

MONIST, volume 29, no. 1, January, 1919: "The relation of logic to mathematics" by R. A. Arms, 146–152; "Independence proofs and the theory of implication" by V. F. Lenzen, 152–160.

MONTHLY WEATHER REVIEW, Washington, D. C., volume 46, October, 1918: "A much needed change of emphasis in meteorological research" by W. S. Franklin, 449–453. [The sub-headings of the article are: Errors of measurement—probable errors and probable departures; hydraulics as illustrating the method of mechanics; thermodynamics and the atomic theory; systematic physics and statistical physics; the postulate of indeterminism; the conception of a physical system as an atomic aggregate and reason for steadiness of behavior; meteorology.]

NOUVELLES ANNALES DE MATHÉMATIQUES, volume 77, 1918, September: "Albert Gauthier-Villars," 321-322; "Sur le système de n équations du second degré

$$\begin{cases} x_1(x_2 + x_3 + \cdots + x_n) + 1 \cdot 2(x_1 + x_2 + \cdots + x_n)^2 = 3^2 a^2, \\ x_2(x_1 + x_3 + \cdots + x_n) + 2 \cdot 3(x_1 + x_2 + \cdots + x_n)^2 = 5^2 a^2, \\ \vdots \\ x_n(x_1 + x_2 + \cdots + x_{n-1}) + n(n+1)(x_1 + x_2 + \cdots + x_n)^2 = (2n+1)^2 a^2 \end{cases}$$

by R. Alezais, 323-342; "Sur une propriété caractéristique des coniques homofocales" by R. Briard, 343-349; "Relations entre les rayons de courbure de deux courbes affines" by F. Balitrand, 349-352—October: "Sur la distribution des nombres premiers absolus" by E. Jablonski, 361-372; "Propriété des coniques et des quadriques à centres" by M. Weill, 373-383; "Sur les cercles de Pappus: formule de Pappus, formule de Schubert généralisée" by G. Fontené, 383-390; "Sur la condition pour que les tangentes aux pieds des normales issues d'un point à une ellipse touchent un cercle" by F. Balitrand, 390-392; "Remarques géométriques sur la question de concours de l'Ecole Polytechnique en 1918" by P. du Plessis, 392-394.

PROCEEDINGS OF THE LONDON MATHEMATICAL SOCIETY, series 2, volume 16, April, 1918: "Jean Gaston Darboux (1842-1917)" by A. R. Forsyth, xlv-xlix; William Henry Besant (1828-1917)" by A. S. R[amsey], l-liii. To Besant are due the mathematical terms, glissette and orthocenter; "he endeavoured to substitute phronomy for kinematics, but the latter was too firmly established to be changed."

PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, volume 4, no. 12, December, 1918: "On Jacobi's extension of the continued fraction algorithm" by D. N. Lehmer, 360-364; "A characterization of Jordan regions by properties having no reference to their boundaries" by R. L. Moore, 364-370.

PROCEEDINGS OF THE ROYAL SOCIETY, London, volume 94A, 1918, no. A662, June: "Jons Oskar Backlund (1846-1916) by H. H. T[urner], pp. xx-xxiv; no. A663, July: "J. G. Darboux (1842-1917)" by E. W. H[obson], pp. xxxi-xxxiv and portrait.

REVUE DE MÉTAPHYSIQUE ET DE MORALE, volume 25, no. 3, May-June, 1918: "La théorie de la relativité et le temps universel" by E. Guillaume, 285-323.

REVUE PHILOSOPHIQUE DE LA FRANCE ET DE L'ÉTRANGER, volume 43, 1918, November-December: "Reflexions sur la thermodynamique à propos d'un livre récent" [L. Selve's *Principe de Carnot contre formule empirique de Clausius, essai sur la thermodynamique* (Paris, 1917)] by L. Rougier, 435-478.

SCHOOL AND SOCIETY, volume 8, 1918, December 21: "The History of Science" by L. C. Karpinski, 741-749. [Review of Marvin's *The Living Past, A Sketch of Western Progress*; Libby's *An Introduction to the History of Science*; Sedgwick and Tyler's *A Short History of Science*, *Studies in the History and Method of Science* edited by C. Singer; Barnard's *The Casting-Counter and the Counting-board*; Peters and Knobel's *Ptolemy's Catalogue of Stars, A Revision of the Almagest*; Knobel's *Ulugh Beg's Catalogue of Stars*; and Cajori's *William Oughtred*]. "The Reed I. Q. Slide Rule" by S. C. Kohs of Reed College, 749-750. Volume 9, January 4, 1919: "Mathematics in general education" by C. N. Moore, 31-33—February 15: "The status of mathematics and mathematical instruction during the colonial period" by Herbert Kimmel, 195-202. [Mr. Kimmel is director of the Training School, State Normal College, Bowling Green, Ohio, and his article is the result of a brief study made while taking a course (at the University of Chicago) on American Colonial Education by Dr. Marcus W. Jernegan.]

SCHOOL REVIEW, Chicago, volume 26, nos. 8-10, October-December, 1918: "A preliminary attempt to devise a test of the ability of high-school pupils in the mental manipulations of space relations" by H. N. Irwin, 600-605, 654-670, 759-772.

SCHOOL SCIENCE AND MATHEMATICS, volume 18, 1918, October: "Map scales" by R. M. Mathews, 596-600; "Graphical algebra as applied to functions of the n th degree" by F. E. Nipher, 603-605; "Mock trial of B versus A or solving a personal equation by the judicial process"¹ (Mr. Stephen Leacock's story "A, B, C") by Kathryn McSorley, 611-621; "A graphical representation of approximations for square root" by O. Dunkel, 621-625; "Two methods of locating the German super gun," by H. F. MacNeish, 626-628; Problem department, 658-661—November: "Some group theory" by G. A. Miller, 675-680; "Bolshevik multiplication" by H. J. R. Twigg, 698; "Mathematics and education" by L. E. Mensenkamp, 709-711;

¹ Presented at a meeting of The Mathematics Club of Hunter College, December 13, 1917.

Problem department, 756-758—No. 9, December: "On the history of 'Playfair's parallel postulate'" by F. Cajori, 778-779; "Making algebra feed the allies" by F. M. Rich, 811-819; "A model of supplementary trihedral angles," 846-848; Problems and solutions, 849-853—Volume 19, no. 1, January, 1919: "Mathematics and anti-mathematics" by C. E. White, 29-37; "The teaching of first year algebra" by W. W. Stradler, 38-44; "Adopt the metric system" by H. N. Kauffman, 82-84; Problems and solutions, 85-88—No. 2, February: "The development of the function concept" by L. L. Dines, 99-110 [read at the annual meeting of the Mathematical and Physical Society of Saskatchewan, April 2, 1918]; "Periodic decimal fractions" by M. O. Tripp, 110-113; "An elementary study of physical units" by S. Waddell, 114-118; "Determination of the refracting angle of a prism, and the angle of minimum deviation" by C. H. Skinner, 119-122; Problems, 186-189.

SCIENCE, volume 49, 1919, January 24: "Professor Ludvig Sylow" by G. A. Miller. [Quotation: "In view of the general interest in the retirement of university professors at sixty-five it may be worth noting that Sylow was appointed professor of mathematics in the University of Christiania after reaching the age of sixty-five years. While various other noted European mathematicians were called to university positions after they had spent years in teaching in secondary institutions, Sylow was perhaps the only one among them who devoted forty years to teaching in a secondary institution before securing a university chair."].

SCIENCE PROGRESS, London, volume 13, 1918, July: "The 34 supermagic square" by F. J. Anderson, 86-96 [Reprinted in *Current Opinion*, volume 65, pp. 376-378, December, 1918, and in the *Scientific American Supplement*, volume 87, 44-45, January 18, 1919]; Reviews by P. E. B. Jourdain of Forsyth's *Theory of functions of a complex variable* (third edition), F. S. Carey's *Infinitesimal Calculus*, and Borel's *Leçons sur les fonctions monogènes uniformes d'une variable complexe*, 147-150—October: "Operative algebra: operative involution" by R. Ross, 288-298; "Problems of arrangement of an infinite class" by P. E. B. Jourdain, 299-304; Reviews by P. E. B. Jourdain of Woods and Bailey's *Analytic Geometry and Calculus*, Hancock's *Theory of maxima and minima* and Picard's *Les sciences mathématiques en France depuis un demi-siècle*; on pages 176-177 Jourdain comments as follows in connection with the AMERICAN MATHEMATICAL MONTHLY: "A very interesting feature of this MONTHLY is the accounts of the really great work that is being done in most American universities in the formation of undergraduate mathematical clubs, in which discussions take place and lectures are given—often by the students themselves—to show that mathematics is a living thing with a history and even human interests. Particularly valuable are the well-documented suggestions of suitable topics. Naturally D'Arcy Thompson's recent book *On Growth and Form* (Cambridge, 1917) is suggestive in this connection . . . and on allied subjects we have excellent notes in the last three of the following list of suggestions that have been made: Rhind papyrus, geometrography, arithmetical prodigies, Ptolemy's theorem, paper folding, women as mathematicians and astronomers, binary arithmetic, the logarithmic spiral, golden section, and a Fibonacci series . . ."—January, 1919: "Physical relativity hypotheses old and new" by G. W. de Tunzelman, 475-482; "Isosceles trigonometry: suggested additions to the trigonometrical ratios" by R. Ross, 485-486; [Quotations: "At present trigonometry is based entirely upon the right-angled triangle; but a useful addition can be founded upon the isosceles triangle. Thus, for the solution of triangles, any right-angled triangle may be divided into two isosceles triangles by drawing a straight line from the right angle so as to bisect the opposite side; and hence any triangle may be discussed in terms of four isosceles triangles. For this purpose it is useful to add two trigonometrical ratios to the list in use. If A is the angle between the two equal sides of an isosceles triangle, we may denote by $\text{bas } A$ the ratio of the base to one of the sides; and if sA is the supplement of the angle A , we may denote $\text{bas } (\pi - A)$ by $\text{bas } sA$. We may then obtain the following easily verified relations: $\dots \text{bas}^2 A + \text{bas}^2 sA = 4 \dots \text{bas } \pi/2 = \sqrt{2} \dots (\text{bas } s\theta + i \text{bas } \theta)^n = \text{bas } sn\theta + i \text{bas } n\theta \dots$ "] P. E. B. Jourdain adds the following note: "It will be observed that the new functions have a periodicity of 4π ; and hence, to a value of $\text{bas } x$ (say) between θ and π , only one value of x belongs, whereas to $\sin x$ (say) two values belong. Thus it seems that these interesting functions may be also of practical importance in avoiding 'the ambiguous case' in the solution of triangles"]. Review by D. O. Wood of Singer's *Studies in the history of science* (Oxford, 1917); Reviews, by H. S. Jones, of Gill and Merrifield's *Navigation and Nautical Astronomy* (London, 1918), Arrhenius's *The Destinies of the Stars* (London, 1918), and of Plummer's *Introductory Treatise on Dynamical Astronomy* (Cambridge, 1918), 490-493; Review by L. Silberstein of Eddington's *Report on the Relativity of gravitation* (London, 1918), 493-494.

SCIENTIA, volume 24, 1918, December: Review by A. Mieli of *Studies in the History and Method of Science* edited by C. Singer (Clarendon Press, 1917), 471–473; review by G. Loria of *An Introduction to the Algebra of Quantics* by E. B. Elliot (second edition, Clarendon Press, 1913), 473–475—Volume 25, 1919, January: “Influence grecque dans le développement des mathématiques hindoues” by G. R. Kaye, 1–14; Reviews, by P. E. B. Jourdain, of Russell’s *Mysticism and logic*, Keyser’s *Human worth of rigorous thinking*, and Huntington’s *The continuum, and other types of serial order*, 62–66.

SCIENTIFIC MONTHLY, volume 8, February, 1919: “Motives for the cultivation of mathematics,” by R. D. Carmichael, 160–178. The last of eight verses with which the article closes is as follows:

’Tis this the watchful, keen Researcher sees:
 It guides him to a bounded field of thought;
 It teaches him the need of new degrees
 Of power by which his conquests may be brought
 To bear on widest realms with blessing fraught.
 A zeal arises in his inmost heart,
 A consecration by deep purpose wrought
 Absorbs his strength, his life he sets apart
 To bless mankind by streams of truth which from him start.

THE SEWANEE REVIEW, Sewanee, Tenn., volume 26, 1918, October–December: “Archibald Henderson” by E. Markham, 468–473. [Quotations: “With occasional flights out into the world, Mr. Henderson has found time for scientific, literary, and cultural activities that almost make us think that in his case time keeps no count of hours. Mathematical and scientific societies of America and Europe know Dr. Henderson for his learned papers in their own fields. His treatise, *The Twenty-seven Lines on the Cubic Surface*, which was published by Cambridge University, England, has been highly lauded at Oxford and Cambridge, and received encomiums from mathematicians in Denmark, Italy, and Japan.”

“... But Archibald Henderson’s greatest biography, and one of the super-biographies of the world, is his oceanic presentation of that insurgent and cryptic personality George Bernard Shaw. The publication of this comprehensive work raised a shout in the literary world. It was a huge life study of a living, changing man, hewn out against a background of the historic, literary and social events of his time. It was a work of large significance not only in tracing the currents of modern thought, but also in giving the pulse and pressure of this Shavian force that is so mighty a spiritual energy for moulding human opinion. This work nailed the name of Archibald Henderson high on the pillar of literary achievement. Bernard Shaw himself said: ‘You are a genius, because you are somehow susceptible to the really significant and differentiating traits and utterances of your subject.’”]

THE TÔHOKU MATHEMATICAL JOURNAL, volume 14, nos. 3–4, November, 1918: “Sets of independent postulates concerning equality and inequality (theory of three undefined relations)” by K. Yoneyama, 171–283; “On Fourier constants” by K. Ogura, 284–296; “Bemerkungen über die Beziehung zwischen Erfahrung und Geometrie” by H. Tanabe, 297–304; “On the Dajutu or the arithmetic series of higher orders as studied by the wasanists” by K. Yanagihara, 305–324; “On the roots of the algebraic equation of the form $f + k_1f' + k_2f'' + \dots + k_nf^{(n)} = 0$ ” by Y. Uchida, 325–327; “On some algebraic equations whose roots are all real and distinct” by Y. Okada, 328–333; “On some algebraic equations having real roots only” by T. Hayashi, 334–339; “On inversion with respect to a conic” [in Japanese] by S. Fukazawa, 340–349.

WASHINGTON UNIVERSITY STUDIES, scientific series, volume 5, no. 2, January, 1918: “On the F_1 -functions of the calculus of variations” by P. P. Rider, 97–100—Volume 6, no. 1, July, 1918: “Necessary conditions for the reality of all the roots of an algebraic equation” by Otto Dunkel, 13–19—no. 2, January, 1919: “A geometric treatment of the exponential function”¹ by O. Dunkel, 33–38.

ZEITSCHRIFT FÜR MATHEMATISCHEN UND NATURWISSENSCHAFTLICHEN UNTERRICHT ALLER SCHULGATTUNGEN, volume 49, Doppel-Heft 8–9, September, 1918: “Das ‘Petersburger Problem’ der Wahrscheinlichkeitsrechnung” by O. Knopf, 233–242; “Der Taylorsche Lehrsatz im Unterricht” by C. Andriessen, 242–247; “Das Bilden von kubischen Gleichungen mit vorgeschriebenen Eigenschaften” by E. Haentzschel, 248–254; “Zum Nachweis der Zentrifugalkraft

¹ Read before the Missouri section of The Mathematical Association of America at the first regular meeting held in St. Louis, Mo., November 18, 1916.

der Erddrehung" by W. Brunner, 254-262; "Max Simon zum Gedächtnis" (mit Bild im Text) by W. Lorey, 268-271. [A more elaborate "Nachruf" by the same author is in *Leopoldina*, 1918, no. 2. Max Simon was born in 1844 and died January 15, 1918. He was Oberlehrer at the Lyceum in Strasbourg for over 40 years¹ and "Honorarprofessor" at the university since 1903. His most successful book was probably his *Didaktik und Methodik des mathematischen Unterrichts*. The long list of his writings in elementary mathematics and mathematical history includes the mathematical articles A-L, as well as the biographies of all mathematicians, in the *Konversationslexikon* of Brockhaus. He was also the author of the mathematical articles A-R in the fifth edition of "Meyer"].—Doppel Heft 10-11, November, 1918: "Ueber isoperimetrische Probleme in der Schule und in der Forschung" by W. Lorey, 281-293; "Nochmals die Hessesche Normalform" by K. Doehlemann, 293-299; "Ueber eine algebraische Behandlungsweise des regulären Siebzehneckes" by H. Wolff, 299-303; "Die Siebenzehn-Teilung des Kreises in elementargeometrischer Herleitung" by R. Lohnstein, 303-312; "Zur Ortsbestimmung eines Fesselballons" by A. Witting, 312-317; "Der räumliche pythagoreische Lehrsatz" by H. Wieleitner, 321-322. [Wieleitner's note deals with the history of the theorem: If a tetrahedron has each of its face angles at one vertex a right angle, the sum of the squares of the areas of the faces about the vertex is equal to the square of the area of the face opposite the vertex. Wieleitner states that this theorem was first given in *Johann Faulhabers Ulmensis Miracula Aritihmetica*, Augspurg, M.DC.XXII, chapter 45, pp. 73-75. Faulhaber refers to the theorem as "ein Neue Geometrische Invention welche auss der Zahl 666 (Apocal. in 13. Cap.) Calculirt und Demonstrirt." It is pointed out that the theorem in its generality was known to Descartes who discussed it in his *Cogitationes privatae* (written 1619-21, but first printed in 1908) where it is stated in the form: In tetraedro rectangulo, basis potentia aequalis est potentijs trium facierum simul. It is known that Faulhaber was in personal touch with Descartes about the time that these *Cogitationes* were written.]

AMERICAN DOCTORAL DISSERTATIONS.

- J. W. CAMPBELL, 1889—, *Periodic solutions of the problem of three bodies in three dimensions*. Pp. 43-84. [Reprinted from *The Proceedings of the London Mathematical Society*, 1917. (Chicago, 1915.)]
- A. M. HARDING, *On certain loci projectively connected with a given plane curve*. 38 pp. [Reprinted from *Giornale di matematiche di Battaglini*, 1916.] (Chicago, 1916.)
- W. L. HART, 1892—, *Differential equations and implicit functions in infinitely many variables*. Pp. 125-160. [Reprinted from *Transactions of the American Mathematical Society*, 1917.] (Chicago, 1916.)
- MARY G. HASEMAN, *On Knots, with a census of the amphicheirals with twelve crossings*. [Reprinted from the *Transactions of the Royal Society of Edinburgh*, volume 52, 1917]. Edinburgh, Neill and Co., 1918. Pp. 235-255 + 1 plate. 4to. (Bryn Mawr, 1916.)
- F. M. MORRISON, 1871—, *On the relation between some important notions of projective and metrical differential geometry*. Pp. 199-221. [Reprinted from the *American Journal of Mathematics*, 1917.] (Chicago, 1913.)
- MARY E. WELLS, *On inequalities of certain types in general linear integral equation theory*. Pp. 163-184. [Reprinted from the *American Journal of Mathematics*, 1917.] (Chicago, 1915.)

MEETING OF THE MARYLAND-VIRGINIA-DISTRICT OF COLUMBIA SECTION.

The Maryland-Virginia-District of Columbia Section of the Mathematical Association of America met at Johns Hopkins University, Baltimore, Maryland, January 18, 1919. Among those in attendance were the following members: Oscar S. Adams, U. S. Coast and Geodetic Survey; H. G. Avers, U. S. Coast and Geodetic Survey; Clara L. Bacon, Goucher College; G. R. Clements, U. S.

¹ Cf. S. WIRZ, *Der mathematische Unterricht an den höheren Knabenschulen sowie die Ausbildung der Lehramtskandidaten in Elsass-Lothringen*. (IMUK Abhandlung), Leipzig, Teubner, 1911.